

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) An electrical connector comprising:
a substantially planar dielectric;
a substantially planar ground plane disposed on one planar surface of the dielectric;
and
a plurality of differential pair signal conductors disposed on the opposing planar surface of the dielectric, ~~each signal conductor is located in a first plane substantially parallel to the ground plane and each differential pair of signal conductors comprises a corresponding pair of signal contact pins, each pair of signal contact pins defining a plane substantially orthogonal to the ground plane~~ each of the plurality of differential pair signal conductors having a corresponding pair of signal contact pins, each signal contact pin of the pair of signal contact pins comprising a) a surface mount portion surface mounted to one of the plurality of differential pair signal conductors, b) a mating portion extending from the surface mount portion, and c) an offset portion between the mating portion and the surface mount portion, offsetting the mating portion from the surface mount portion, wherein for each pair of signal contact pins, the offset portions of the pair of signal contact pins offset the mating portions of the pair of signal contact pins to opposite sides of the dielectric.
2. (Original) The electrical connector as recited in claim 1 wherein the dielectric comprises polyimide.
3. (Original) The electrical connector as recited in claim 1 wherein the dielectric comprises a recess for receiving a solder ball for a ball grid array connection to a circuit card.
4. (Previously Presented) The electrical connector as recited in claim 1 wherein the dielectric comprises a finger extending substantially along the plane of the dielectric, the signal conductor extending along the finger.

5. (Original) The electrical connector as recited in claim 1 wherein the ground plane comprises a plurality of ground contact pins extending from an end thereof.
- 6-7. (Canceled)
8. (Original) The electrical connector as recited in claim 1 wherein the ground plane comprises phosphor bronze.
9. (Previously Presented) The electrical connector as recited in claim 1 wherein at least a portion of the ground plane is plated and etched onto the dielectric.
10. (Canceled)
11. (Previously Presented) The electrical connector as recited in claim 1 wherein at least a portion of the signal conductor is plated and etched onto the dielectric.
12. (Previously Presented) The electrical connector as recited in claim 1 wherein each signal conductor of the plurality of differential pair signal conductors comprises a first section and a second section disposed approximately ninety degrees to the first section.
- 13-14. (Canceled)
15. (Previously Presented) The electrical connector as recited in claim 1 wherein conductors within a differential pair of signal conductors are located closer than conductors of two adjacent differential pairs.
16. (Currently Amended) An electrical connector comprising:
a plurality of connection modules located substantially parallel to each other, each module comprising:
a substantially planar dielectric;

a substantially planar ground plane disposed on one planar surface of the dielectric; and

a plurality of differential pair signal conductors disposed on the opposing planar surface of the dielectric, ~~each signal conductor is located in a first plane substantially parallel to the ground plane and each differential pair of signal conductors comprises a corresponding pair of signal contact pins, each pair of signal contact pins defining a plane substantially orthogonal to the ground plane~~ each of the plurality of differential pair signal conductors having a corresponding pair of signal contact pins, each signal contact pin of the pair of signal contact pins comprising a) a surface mount portion surface mounted to one of the plurality of differential pair signal conductors, b) a mating portion extending from the surface mount portion, and c) an offset portion between the mating portion and the surface mount portion, offsetting the mating portion from the surface mount portion, wherein for each pair of signal contact pins, the offset portions of the pair of signal contact pins offset the mating portions of the pair of signal contact pins to opposite sides of the dielectric.

17-18. (Canceled)

19. (Previously Presented) The electrical connector as recited in claim 16 wherein, for each connection module, the ground plane comprises a ground contact pin for each differential pair of signal conductors and each ground contact pin is located substantially coplanar with a corresponding pair of signal contact pins.

20. (Currently Amended) An electrical interconnection system comprising:

a header connector comprising:

a plurality of connection modules located substantially parallel to each other, each module comprising:

a substantially planar dielectric;

a substantially planar ground plane disposed on one planar surface of the dielectric;

and

a plurality of differential pair signal conductors disposed on the other planar surface of the dielectric, for each connection module, ~~each signal conductor is located in a first plane~~

~~substantially parallel to the ground plane and each differential pair of signal conductors comprises a pair of signal contact pins, each pair of signal contact pins defining a plane substantially orthogonal to the ground plane, and the ground plane comprises a ground contact pin for each differential pair of signal conductors and each ground contact pin is located substantially coplanar with a corresponding pair of signal contact pins~~ each of the plurality of differential pair signal conductors having a corresponding pair of signal contact pins, each signal contact pin of the pair of signal contact pins comprising a) a surface mount portion surface mounted to one of the plurality of differential pair signal conductors, b) a mating portion extending from the surface mount portion, and c) an offset portion between the mating portion and the surface mount portion, offsetting the mating portion from the surface mount portion, wherein for each pair of signal contact pins, the offset portions of the pair of signal contact pins offset the mating portions of the pair of signal contact pins to opposite sides of the dielectric; and

a receptacle connector comprising:

a plurality of receptacle contacts for receiving the signal contact pins and the ground contact pins.

21. (Original) The electrical interconnection system as recited in claim 20 wherein the plurality of receptacle contacts are substantially cylindrical shaped.

22. (Original) The electrical interconnection system as recited in claim 20 wherein the plurality of receptacle contacts are arranged into an array of rows and columns.

23. (Original) The electrical interconnection system as recited in claim 22 wherein the columns are arranged in repeating patterns of first, second, and third columns and the first and second columns are spaced farther apart than the second and third columns.

24. (Original) The electrical interconnection system as recited in claim 22 wherein the columns are arranged in repeating patterns of first, second, and third columns and the first and second columns are for connection to differential pair signal contact pins and the third column is for connection to ground contact pins.

25. (Withdrawn) A method of making an electrical connector, the method comprising:
providing a substantially planar dielectric; and
etching a plurality of conductors onto one surface of the dielectric.
26. (Withdrawn) The method as recited in claim 25, further comprising:
etching a substantially continuous ground plane onto the other surface of the dielectric.
27. (Withdrawn) The method as recited in claim 25, further comprising:
connecting a substantially continuous ground plane onto the other surface of the dielectric.
28. (Withdrawn) The method as recited in claim 25, further comprising:
connecting a connector to each end of each of the plurality of conductors.
29. (Withdrawn) The method as recited in claim 28, wherein connecting a connector comprises, for each conductor, connecting a contact pin to one end of the conductor and connecting a solder ball to the other end of the conductor.
30. (Previously Presented) The electrical connector as recited in claim 1, wherein the ground plane comprises a ground contact pin for each differential pair of signal conductors and each ground contact pin is located substantially coplanar with a corresponding pair of signal contact pins.
31. (New) The electrical connector as recited in claim 1 wherein the mating portion extends substantially parallel to the surface mount portion.
32. (New) The electrical connector as recited in claim 31 wherein the offset portion is angled.

33. (New) The electrical connector as recited in claim 16 wherein the mating portion extends substantially parallel to the surface mount portion.
34. (New) The electrical connector as recited in claim 33 wherein the offset portion is angled.
35. (New) The electrical interconnection system as recited in claim 20 wherein the mating portion extends substantially parallel to the surface mount portion.
36. (New) The electrical interconnection system as recited in claim 35 wherein the offset portion is angled.